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NEW AND LITTLE KNOWN DIPTERA FROM THE ORGAN MOUNTAINS AND VICINITY IN NEW MEXICO.

BY C. H. T. TOWNSEND.

The following are descriptions and notes made some time since, which it is thought desirable to publish at the present time:

Systropus ammophiloides n. sp.

Three males, September 3rd, 4th and 5th; and one female, September 5th, all on flowers of *Lippia wrightii*, at La Cueva (Riley's Ranch), Organ Mts., N. M., about 5300 ft. Differs from Loew's description of *macer* as follows:

Length of both sexes 14 to 14.5 mm. not including antennæ, which are 3 mm., and not making allowance for curvature of abdomen. Length of wing 8 to 10 mm. It is thus a larger, more robust species. Length of head and thorax taken together, 4 to 4.75 mm. Length of antennæ, as given above, was taken straight, not following the angle. Third antennal joint 2.25 to nearly 3 times length of second. Spots of humeri and hind angles of thorax bright yellow, instead of white. First abdominal segment sometimes rufous on posterior half, more often with but little or no rufous. Last three segments always black, as in *macer*. Coxæ all black. Anterior femora rufous in middle on underside, all the rest of legs black, except white and yellow pubescent lines on front and middle tibiæ and metatarsi. Halteres soft brownish, whole anterior side of knobs and distal half of posterior side yellow. Wings pale fuscous, a distinctly deeper fuscous occupying costal cells, proximal two-thirds or more of marginal cell, proximal half of first submarginal cell. and vicinity of anterior cross-vein. Another area of deeper fuscous occupies proximal half of second basal cell, usually continued along inner border to posterior cross-vein, which is also clouded with it. Sometimes the deeper shading is subobsolete or of less extent in marginal and submarginal cells. Origin of third vein still more deeply clouded, showing a dark brown spot, and this is usually the case with the anterior cross-vein. First antennal joint somewhat sparsely clothed with fine white pubescence, sometimes showing as yellowish, second joint thickly clothed with shorter black pubescence. The pubescence of first joint appears black if not examined with proper light.

The hind legs are excessively elongate, being 18 to nearly 22 mm. long. The sexual differences pointed out by Osten Sacken in the Biologia are exactly the same in this species.

This is a most interesting fly, as it imitates very closely a common *Ammophila*, which visits the same flowers of *Lippia wrightii*, and which Professor Cockerell says is probably *A. vulgaris* Cr. In his

Western Diptera, Osten Sacken records two cases of *Systropus* being bred from larvæ of *Limacodes.* Doubtless all the species of *Systropus* mimic more or less closely some species of aculeata hymenoptera, as does the present certain species of *Ammophila.* Certainly the close imitation of *Ammophila* by the present species must mean something, either that the *Systropus* is parasitic in its larval state in *Ammophila* (larva, pupa or adult), or possibly that it is parasitic in some of the larvæ with which *Ammophila* stores its nests. The latter supposition would explain the above records by Osten Sacken of its parasitism of *Limacodes.* The long hind legs are an important part in the mimicry. The *Systropus* allows them to hang down when flying, just as does *Ammophila.*

The American species of *Systropus* so far known are divisible into two groups, corresponding apparently to the temperate and tropical faunal regions, the temperate group characterized by the abdomen being black at both ends and red in the middle, the five species of which are all from the United States; the other characterized by the abdomen not being so colored, the ten species of which occur collectively from Mexico to Brazil. For a synoptic table of the neotropical species, see Osten Sacken, Biologia C. A. Dipt. 1, p. 157, where this division of groups is adopted. The following table will separate the U. S. species, but it also, like Osten Sacken's, is made from descriptions and must be used with caution:

Thorax with humeral spots; abdomen red except base and tip.............. 2.
Thorax without humeral spots; abdomen black with red in middle and of less extent ....4.
2. Humeral spots white; front coxæ red, middle ones red and black. **macer** Loew.
Humeral spots red or yellow, all the coxæ black ....3.
3. Legs extirely black, humeral spots red like abdomen, wings with only the veins infuscate, third antennal joint not twice as long as second. **angulatus** Karsch.
Front and middle tibiæ and metatarsi striate with white and yellow pubescent lines, humeral spots bright yellow, strongly contrasted with color of abdomen; wings distinctly infuscate with costal portion more deeply so; third antennal joint between 2 and 3 times as long as second. **ammophiloides** n. sp.
4. Legs wholly black.............................. **infuscatus** Karsch.
Legs striate, with yellow anteriorly.................. **imbecillus** Karsch.

Volucella opalescens n. sp.

One female, La Cueva (Riley's Ranch), Organ Mts., September 4th, in flowers of *Datura meteloides* before sunrise. Differs from

Williston's description of *chætophora* (Syn. Syrph., pp. 149–50), as follows:

> Length about 8 mm. Face, front and antennæ brownish yellow, the front appearing yellowish brown when viewed from above, the orbits with a very narrow, inconspicuous, white pollinose line. Face strongly produced downward, lower border of cheeks forming an angle of about 120 degrees with plane of occiput. Cheeks greenish black on posterior portion next occiput. Face well hollowed below antennæ, tubercle rounded-obtuse but conspicuous. Third antennal joint rather elongate, four or more times as long as second, wide, but little narrowed distally, arista concolorous with antennæ. Pile of front and face brownish yellow. Dorsum of thorax and scutellum opalescent, milky, greenish blue or milky olive, with violet to cupreous metallic reflections, the scutellum more darkly blue, with violet or purplish reflections. The prescutellar row of bristles is weak but distinct. Scutellum with six to eight bristles. Pile of thorax and scutellum yellowish like that of front. Abdomen wholly deep shining bluish green. Legs blackish or brown; knees, metatarsi and next tarsal joint yellowish. Wings clear, bases and stigmal area pale yellowish, following distal half third costal cell to its extremity; stigma and anterior cross-vein brown. Pile of abdomen short, even, close, appearing whitish from above but brownish yellow from sides, giving no fasciate appearance to abdomen which is uniformly colored and shining. The width of abdomen is about equal to its length, measuring 4 mm. in both dimensions. The pleuræ are rather yellowish brown. Second vein regular. Marginal cell closed and short petiolate. Anterior cross-vein rather near base discal cell.

This is a most interesting species, occurring as it does at the western base of the Organ Mts., for it belongs to the neotropical group of *V. amethystina*, as defined by me in Ann. and Mag. of N. H., ser. 6, vol. 20, July, 1897, pp. 25–30, where five similar species taken by me in the State of Vera Cruz, near Jicaltepec, on flowers of *Cordia* sp., are described. It is more nearly allied to *opalina* and *chætophora* than to the others. It differs from them in having the face produced downward into an acute cone, not right-angled conical as in those species; and in the third antennal joint not being narrowed on distal half.

Volucella haagii Jaenn.

A small female specimen, measuring only 11.5 mm., taken September 5th, at La Cueva, Organ Mts., in flower of *Datura meteloides* before sunrise. Other larger specimens were seen on several previous mornings, from daylight to sunrise, in the same flowers, but were not caught owing to their extreme wariness.

Conops auratus n. sp.

Three males and one female, La Cueva (Riley's Ranch), Organ Mts., about 5300 ft.; the males August 29th, September 4th and

5th; the female September 5th. All on flowers of *Lippia wrightii*, the August 29th specimen collected by Professor Cockerell, the others by myself.

Male and female: related to *C. excisus* Wied. (Fla., Ga., N. Carolina) and *rufus* Will. (Brazil). Differs from Williston's description of *excisus* (Tr. Conn. Acad. iv, 1882, pp. 330–331) as follows:

Cheeks with a large brown spot taking up their whole area, except outer posterior corner. Proboscis more than twice length of head, head being about 2.5 mm. and proboscis 5.5 mm. Third antennal joint wholly black (female specimen) to distal half black (two male specimens, the other male having it black except reddish at base). Second antennal joint about as long as third including whole of style. The second joint of style is large and subtriangular in outline, the enlargement projected inwardly, forming a conspicuous process on inner side of style. The vertex and front are of much the same yellow as face, but the vertex is tinged with reddish, and the front on median line and sides posteriorly is tinged with blackish. Occiput deep reddish, yellowish on inferior third, orbital line of yellowish pollen extending broadly across below vertex present. Ground color of thorax deep reddish, the black appearing in three heavy vittæ, the median one extending to anterior border of thorax between the golden yellow humeral spots and being more or less split at posterior end, which continues only to point halfway between transverse suture and scutellum. The lateral vittæ extend from humeral spots to point three-fourths or more between transverse suture and scutellum, and are narrowly interrupted at transverse suture. Scutellum same reddish as thorax; metanotum reddish, upper half of disk golden yellow pollinose, lower half blackish, sides of metanotum golden pollinose, except that pollen appears faint on upper hollowed half. Narrow lateral border of thorax golden, showing in a line continued back from humeral spots to wing bases. The golden spots of thorax, etc., are apparently as in *excisus;* in all the specimens except one male there is a trace of golden pollen on median line on posterior margin of mesoscutum. Abdomen same reddish as thorax, first segment with narrow anterior margin of black, rest of first segment golden pollinose, with silvery on sides; second segment golden pollinose on posterior third or more, extending on to anterior margin of third segment; third segment of male blackish across middle, the black merging insensibly in front into the reddish, but changed abruptly behind into golden pollinose, which takes up posterior third or more of length of segment. Fourth, fifth and sixth segments of male wholly densely golden pollinose, except that fourth shows the reddish ground color narrowly, sometimes more widely, on anterior margin. Female differs by having third segment without black across middle or only a faint tinge of it, the golden fascia being subarcuate, with posterior border behind it blackish or brown, the latter color thus having arcuate anterior border and being widened in middle and tapered laterally; fourth segment reddish, with rather narrow blackish or brown posterior border, in front of which is narrow golden pollinose fascia bulged anteriorly on median third; fifth, sixth and seventh segments wholly densely golden pollinose like fourth to sixth of male, but the reddish shows on one side on anterior margin of fifth segment, which, by the way, is very short in female and bears on underside a very large and stout process slightly curved and measuring 2 mm. in length. Sixth segment of female about as long as two preceding segments taken together. Legs yellowish red, outside of all the tibiæ white pollinose, but hind pair sometimes very faintly so. Outside of coxæ golden whitish, posterior coxæ silvery. Claws yellowish, with black tips, pulvilli yellow. Wings clouded with fuscous or blackish on anterior (outer) half as follows: costal cells clear, auxiliary vein and cross-vein at each end of it yellowish; all the basal cells clear; discal cell clear, except black cloud along whole posterior margin, this cloud widest in middle, its proximal half filling almost exactly posterior (inner) half of proximal half of cell. First posterior cell with a spurious vein, abruptly clear behind (inside) of this vein, otherwise wholly clouded, except that the clouding fades into a nearly clear rather wide border along last section of fourth vein, this clear area ending distally in a point. Second and third posterior cells, anal angle and alula wholly clear. Veins along basal (including anal) cells yellowish. Marginal and submarginal cells wholly blackish. Halteres bright yellow. Sexual processes of female on underside of abdomen, with space between them, black, especially the smaller anal one, the latter red on base, the large anterior one reddish on base and tip. Length of males 14.5 to 15.5 mm.; of female 13.5 mm. Length of wing of male 10 to 11 mm.; of female 9.5 mm.

This species approaches both *excisus* and *rufus* in the large ventral process of female, as well as in the prevailing reddish and yellow colors and picture of the wings.

Rhaphiomidas xanthos Towns.

Three specimens, September 10th; one male and one female, mesa east of Las Cruces in the *Larrea* belt, and one female dead on sidewalk in town of Las Cruces. This is the first record of the occurrence of the family Apioceridæ in New Mexico.

The female from the mesa measures 24 mm. in length not including antennæ or proboscis. It has the second, third and fourth abdominal segments clouded laterally, and on median line with brown, the fourth more extensively so laterally than the others. The fifth, sixth and seventh segments are brownish in both females. The other female (the one found dead on sidewalk) measures only 19.5 mm. in length (excluding antennæ, etc.), and has abdominal segments 2, 3 and 4 wholly yellowish as in the male specimen. The male measures 20.5 mm. in length not following curvature of abdomen, and has abdominal segments 2 to anal wholly yellowish, except that 2 has a median anterior spot of dark brown. All three of the specimens have first abdominal segment blackish, this color nearly concealed by rather dense white pile, the pile of the other segments being yellowish. The eyes are vivid bright green. The last three abdominal segments in the females are almost bare of pile compared with the other segments, and appear glabrous.

It will be seen from the above notes that the female from the mesa approaches *acton* Coq. in having brown on second to fourth segments, though the brown does not appear as a front border to the segments as in that species. It is best referable to *xanthos* at present, but may prove to be a good variety on the collection of further material. The male and the other female agree perfectly, both in size and abdominal coloration, the anal segments of male being also yellowish and the hypopygium brownish yellow.

The occurrence of the family Apioceridæ in New Mexico is of extreme interest, and particularly so is the occurrence of the genus *Rhaphiomidas;* not only the genus, but also the family so far as North America is concerned, being heretofore known only from California and Lower California. It should be mentioned that Professor Cockerell caught an "asilid-like fly" on the sand hills near Mesilla Park, N. M., on May 21st, which was determined by Mr. D. W. Coquillett as *Apiocera haruspex* O. S. The specimen was not returned, and is now in the National Museum. I am inclined to doubt the determination until it is verified or other specimens are collected in that locality.